

Abstract

Title: To study the diagnostic value of individual sonographic signs in acute appendicitis

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Objective:

The purpose of this study was primarily to evaluate the diagnostic value of indirect ultrasonographic signs in acute appendicitis and secondarily to look at the diagnostic value of direct ultrasonographic signs and to assess the value of using USG probability criteria in acute appendicitis.

Methods:

This was a prospective study approved by the Institutional Review Board with financial grant for the same. Patients with clinical diagnosis of acute appendicitis underwent emergency ultrasonography following the study protocol. 62 patients who underwent emergency appendicectomy within 24 hours of the USG and had histopathologically proven acute appendicitis were included in the study. The incidence of 8 indirect and 5 signs were calculated. Also, the association of each of these signs with perforation was assessed using Chi-square test, followed by multivariate analysis.

Results:

Appendix was visualised in 93.5% of the cases. At least one indirect sign was present in 98.4% (61) of the cases, at least 2 were present in 95.2% of cases and at least 3 were present in 77.4 % of cases. The indirect signs with the maximum incidence was probe tenderness in RIF (95.2 %) and increased echogenicity and thickness of mesenteric fat in RIF (91.9%).

At least 1 direct sign was positive in 91.9 % of the cases, at least 2 were positive in 90.3 % of the cases. The direct signs with maximum incidence was enlarged appendix (91.9%) and lack of compressibility of appendix (91.9%).

Hypoperistalsis of regional bowel had a significant association with perforation [odds ratio of 7.34 ; p value of 0.003. (95 % CI: 1.93 to 27.4)]

All the cases that were considered Unequivocally Positive and Probably Positive for appendicitis by Ultrasound criteria, were positive on histopathology.

Conclusions:

There was a high incidence of indirect ultrasonographic signs; probe tenderness had the highest incidence, followed by increased echogenicity of mesenteric fat in the RIF.

In the absence of direct signs, the indirect signs with maximum incidence were probe tenderness in RIF and increased echogenicity & thickness of mesenteric fat in RIF.

The direct signs with maximum incidence were enlarged appendix and lack of compressibility of appendix.

There was no significant difference in the incidence of indirect or direct signs between the paediatric and adult groups.

Hypoperistalsis of regional bowel had a significant association with perforation.

Ultrasound criteria are extremely useful in predicting appendicitis.

Key words: acute appendicitis, ultrasonography, indirect signs, direct signs, probability criteria, perforation

